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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,121	01/16/2004	Shinichiro Gomi	247786US6	5039

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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
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EXAMINER	
CUTLER, ALBERT H	
ART UNIT	PAPER NUMBER
2622	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	03/07/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/07/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/758,121	GOMI ET AL.	
	Examiner	Art Unit	
	Albert H. Cutler	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is responsive to application 10/758,121 filed on January 16, 2004. Claims 1-6 are pending in the application and have been examined by the examiner.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 5 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 5 defines a record medium embodying functional descriptive material. However, the claim does not define a computer-readable medium or memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of the technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). That is, the scope of the presently claimed record medium can range from a paper on which the program is written to a

program simply contemplated and memorized by a person. The examiner suggests amending the claim to embody the program on "computer-readable medium" or equivalent in order to make the claim statutory. Any amendment to the claim should be commensurate with its corresponding disclosure.

Claim 6 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 6 defines a program embodying functional descriptive material. However, the claim does not define a computer-readable medium or memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of the technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). That is, the scope of the presently claimed program can range from a paper on which the program is written to a program simply contemplated and memorized by a person. The examiner suggests amending the claim to embody the program on "computer-readable medium" or equivalent in order to make the claim statutory. Any amendment to the claim should be commensurate with its corresponding disclosure.

Claim Rejections - 35 USC § 103

2. Claims 1, 4, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al.(U.S. Patent Application Publication 2001/0048474) in view of Hattori et al.(U.S. Patent 6,937,277).

Consider claim 1, Yamazaki et al. teaches:

A signal processing apparatus(figures 1-3) comprising:

means for generating a luminance signal("brightness data of a subject is obtained", paragraphs 0071 and 0072) of an input video signal("e.g. a color composition video signal of the NTSC format", paragraph 0073);

means for extracting a high frequency signal from said input video signal("extracting a high frequency composition of the video signal", paragraph 0071);

mask generating means("coring circuit", 114, figure 26) for generating a mask by masking image quality degrading components(The coring circuit reduces(i.e. masks) values of a small amplitude components(i.e. image degrading components) to zero, paragraph 0181.) contained in a signal;

gain factor generating means(CPU, 32, paragraphs 0181 and 0182, see figure 26) for generating a gain factor on the basis of said mask(The CPU generates the gain value(i.e. gain factor) and the coring value(i.e. mask value) based on the image quality, paragraph 0182. Therefore, since both the gain factor and mask factor are changed using the same basis, the gain factor is generated on the basis of said mask.);

contour correction signal generating means(Contour Signal Producing Circuit, 110, and Multiplier, 112, see figure 26) for generating a contour correction signal by multiplying a signal with said gain factor(paragraph 0181, figure 26); and

correcting means(Adder, 116, figure 26) for correcting said luminance signal on the basis of said contour correction signal(paragraph 0181).

Yamazaki et al. do not explicitly teach that the contour correction and mask generation is performed on the high frequency signal. However, the contour signal producing circuit(110), although not explicitly described, is most likely used to extract a high frequency signal for contour correction.

Hattori et al. is similar to Yamazaki et al. in that a camera(figure 1) is used to capture an image, and contour correction is performed on that image(column 14, lines 29-46).

In addition to the teachings of Yamazaki et al., Hattori et al. explicitly teach that the contour correction circuit extracts a high frequency signal, and performs contour correction on said high frequency signal(column 14, lines 29-46).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to perform contour correction as taught by Yamazaki et al. on an extracted high frequency signal as taught by Hattori et al. for the benefit that a high frequency signal is one with little variation in comparison to a signal containing low frequency components, and performing contour correction on the high frequency signal would create a more vivid, defined, and natural looking image.

Consider claim 4, Yamazaki et al. teach:

A signal processing method(paragraphs 0070, 0071, 0180-0182) comprising the steps of:

generating a luminance signal ("brightness data of a subject is obtained", paragraphs 0071 and 0072) of an input video signal("e.g. a color composition video signal of the NTSC format", paragraph 0073);

extracting a high frequency signal from said input video signal("extracting a high frequency composition of the video signal", paragraph 0071);

generating a mask by masking image quality degrading components contained in a signal(The coring circuit reduces(i.e. masks) values of a small amplitude components(i.e. image degrading components) to zero, paragraph 0181.);

generating a gain factor on the basis of said mask(The CPU generates the gain value(i.e. gain factor) and the coring value(i.e. mask value) based on the image quality, paragraph 0182. Therefore, since both the gain factor and mask factor are changed using the same basis, the gain factor is generated on the basis of said mask.);

generating a contour correction signal by multiplying a signal by said gain factor(paragraph 0181, figure 26);

and correcting said luminance signal on the basis of said contour correction signal(paragraph 0181, see claim 1 rationale).

Yamazaki et al. do not explicitly teach that the contour correction and mask generation is performed on the high frequency signal. However, the contour signal

producing circuit(110), although not explicitly described, is most likely used to extract a high frequency signal for contour correction.

Hattori et al. is similar to Yamazaki et al. in that a camera(figure 1) is used to capture an image, and contour correction is performed on that image(column 14, lines 29-46).

In addition to the teachings of Yamazaki et al., Hattori et al. explicitly teach that the contour correction circuit extracts a high frequency signal, and performs contour correction on said high frequency signal(column 14, lines 29-46).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to perform contour correction as taught by Yamazaki et al. on an extracted high frequency signal as taught by Hattori et al. for the benefit that a high frequency signal is one with little variation in comparison to a signal containing low frequency components, and performing contour correction on the high frequency signal would create a more vivid, defined, and natural looking image.

Consider claim 5, Yamazaki et al. teach:

A record medium(ROM) storing a computer readable program that executes signal processing(paragraph 0078), said computer readable program comprising the steps of:

generating a mask by masking image quality degrading components contained in a signal extracted from an input video signal(The coring circuit reduces(i.e. masks)

values of a small amplitude components(i.e. image degrading components) to zero, paragraph 0181.);

generating a gain factor on the basis of said mask(The CPU generates the gain value(i.e. gain factor) and the coring value(i.e. mask value) based on the image quality, paragraph 0182. Therefore, since both the gain factor and mask factor are changed using the same basis, the gain factor is generated on the basis of said mask.);

generating a contour correction signal by multiplying said signal by said gain factor(paragraph 0181, figure 26);

and correcting a luminance signal of said input video signal on the basis of said contour correction signal(paragraph 0181, see claim 1 rationale).

Yamazaki et al. do not explicitly teach that the contour correction and mask generation is performed on the high frequency signal. However, the contour signal producing circuit(110), although not explicitly described, is most likely used to extract a high frequency signal for contour correction.

Hattori et al. is similar to Yamazaki et al. in that a camera(figure 1) is used to capture an image, and contour correction is performed on that image(column 14, lines 29-46).

In addition to the teachings of Yamazaki et al., Hattori et al. explicitly teach that the contour correction circuit extracts a high frequency signal, and performs contour correction on said high frequency signal(column 14, lines 29-46).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to perform contour correction as taught by Yamazaki et al.

on an extracted high frequency signal as taught by Hattori et al. for the benefit that a high frequency signal is one with little variation in comparison to a signal containing low frequency components, and performing contour correction on the high frequency signal would create a more vivid, defined, and natural looking image.

Consider claim 6, Yamazaki et al. teach:

A program that has a computer execute signal processing(paragraph 0078), said program comprising the steps of:

generating a mask by masking an image quality degrading component contained in a high frequency signal extracted from an input video signal(The coring circuit reduces(i.e. masks) values of a small amplitude components(i.e. image degrading components) to zero, paragraph 0181.);

generating a gain factor on the basis of said mask(The CPU generates the gain value(i.e. gain factor) and the coring value(i.e. mask value) based on the image quality, paragraph 0182. Therefore, since both the gain factor and mask factor are changed using the same basis, the gain factor is generated on the basis of said mask.);

generating a contour correction signal by multiplying said high frequency signal by said gain factor(paragraph 0181, figure 26);

and correcting a luminance signal of said input video signal on the basis of said contour correction signal(paragraph 0181, see claim 1 rationale).

Yamazaki et al. do not explicitly teach that the contour correction and mask generation is performed on the high frequency signal. However, the contour signal

producing circuit(110), although not explicitly described, is most likely used to extract a high frequency signal for contour correction.

Hattori et al. is similar to Yamazaki et al. in that a camera(figure 1) is used to capture an image, and contour correction is performed on that image(column 14, lines 29-46).

In addition to the teachings of Yamazaki et al., Hattori et al. explicitly teach that the contour correction circuit extracts a high frequency signal, and performs contour correction on said high frequency signal(column 14, lines 29-46).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to perform contour correction as taught by Yamazaki et al. on an extracted high frequency signal as taught by Hattori et al. for the benefit that a high frequency signal is one with little variation in comparison to a signal containing low frequency components, and performing contour correction on the high frequency signal would create a more vivid, defined, and natural looking image.

3. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. in view of Hattori et al. as applied to claim 1 above, and further in view of Cohen-Solal et al.(U.S. Patent 7,057,636).

Consider claim 2, and as applied to claim 1 above, Yamazaki et al. teach a signal processing apparatus that performs mask generation by eliminating quality degrading

components(see claim 1 rationale). Hattori et al. teach that contour correction is performed on a high frequency signal(see claim 1 rationale).

However, the combination of Yamazaki et al. and Hattori et al. does not explicitly teach of performing an arbitrary number of times dilation processing or erosion processing.

Cohen-Solal et al. is similar to Yamazaki et al. in that a camera(50, figure 1c) is used to capture video data(column 3, line 66 through column 4, line 18), and that the camera also includes a processor(54, figure 1c) and a CPU(52, figure 1c). Cohen-Solal et al. is further similar in that a mask is used(column 7, lines 47-55).

In addition to the teachings of Yamazaki et al. and Hattori et al., Cohen-Solal et al. teach performing an arbitrary number of times dilation processing or erosion processing using a mask(column 9, lines 42-55).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to perform an arbitrary number of times dilation processing or erosion processing using a mask as taught by Cohen-Solal et al. on the high frequency signal taught by the combination of Yamazaki et al. and Hattori et al. for the benefit that a combination of dilation and erosion processing would fill unwanted gaps between visual image components, while still keeping the components substantially the same scale(Cohen-Solal et al., column 9, lines 49-52).

Consider claim 3, and as applied to claim 1 above, Yamazaki et al. teach of a gain factor generating means and of a mask generation means for manipulating an input video signal(see claim 1 rationale).

However, the combination of Yamazaki et al. and Hattori et al. does not explicitly teach of a detecting means for detecting an edge component, or that said gain factor controls then enhanced amount of said edge component.

Cohen-Solal et al. is similar to Yamazaki et al. in that a camera(50, figure 1c) is used to capture video data(column 3, line 66 through column 4, line 18), and that the camera also includes a processor(54, figure 1c) and a CPU(52, figure 1c). Cohen-Solal et al. is further similar in that a mask is used(column 7, lines 47-55).

In addition to the teachings of Yamazaki et al. and Hattori et al., Cohen-Solal et al. teach of a detecting means for detecting an edge component(column 7, line 46 through column 8, line 12), and that said gain factor controls the enhanced amount of said edge component("Pixels located on edges(i.e. edge components) are removed from consideration", column 7, lines 46-47. Since edge components are removed from consideration, no gain is applied to those pixels, and they are not enhanced.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to include a detecting means for detecting edge components, and adjusting the amount of enhancement accordingly as taught by Cohen-Solal et al. in the gain factor generating means taught by the combination of Yamazaki et al. and Hattori et al. because edge components already represent a high

variance(i.e. a high degree of contour) and additional contour enhancement would not be needed(Cohen-Solal et al., column 7, line 46 through column 8, line 13).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert H. Cutler whose telephone number is (571)-270-1460. The examiner can normally be reached on Mon-Fri (7:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc-Yen Vu can be reached on (571)-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AC

NGOC-YEN VU
SUPERVISORY PATENT EXAMINER